

AMENDMENTS TO THE CLAIMS

Please amend the claims as shown below:

1.(Currently Amended)      A method of forming a floating charge pump comprising:

configuring a charge pump controller to charge an output capacitor that is referenced ~~referencing an output capacitor of the floating charge pump~~ to a high side of a first voltage supply wherein the first voltage supply has a first value;

configuring the charge pump controller to receive an operating voltage for operating the charge pump controller from a second voltage supply that is external to the charge pump controller and that has a second value wherein the charge pump controller is configured to derive a pump voltage to charge the output capacitor from the second voltage supply and wherein the second value of the second voltage supply is independent of the first voltage supply.

2.(Cancelled)

3.(Currently Amended)      The method of claim 1 wherein ~~referencing the output capacitor of the floating charge pump~~ configuring the charge pump controller to charge the output capacitor that is referenced to the high side of the first voltage supply includes coupling the output capacitor to charge to a voltage substantially equal to ~~a~~ the pump voltage of the ~~floating charge pump~~ charge pump controller.

4.(Currently Amended) The method of claim 1 further including coupling a pump capacitor to charge to a voltage substantially equal to the first value of the high-side first voltage supply and to couple the ~~plus a pump voltage~~ across the pump capacitor to the output capacitor of the floating charge pump.

5.(Currently Amended) The method of claim 1 further including ~~forming a~~ configuring the charge pump controller ~~operably coupled to generate a pump voltage of the floating charge pump and to~~ generate a series of pulses having a voltage swing equal to the pump voltage.

6.(Currently Amended) The method of claim 5 wherein ~~forming the charge pump controller operably coupled to generate the pump voltage~~ configuring the charge pump controller to generate the series of pulses includes coupling the charge pump controller to generate a regulated voltage from the second voltage supply and to couple the regulated voltage to an output of the charge pump controller to generate the pump voltage.

7.(Cancelled)

8.(Currently Amended) A floating charge pump circuit comprising:

an first input coupled to receive ~~an input~~ a first supply voltage having a voltage supply side and a voltage return side; and

an output capacitor referenced to the voltage supply side of the ~~input~~ first supply voltage;

a second supply voltage that is different from the first supply voltage; and

a charge pump controller coupled to receive the second supply voltage wherein the second supply voltage is external to the charge pump controller, the charge pump controller configured to use the second supply voltage to generate an operating supply of the charge pump controller and configured to form a pump voltage that is derived from the operating supply.

9.(Cancelled)

10.(Currently Amended) The floating charge pump circuit of claim 8 wherein the output capacitor referenced to the voltage supply side of the first supply ~~input~~ voltage includes a first terminal of the output capacitor referenced to the voltage supply side of the first supply ~~input~~ voltage and a second terminal coupled to receive a the pump voltage of the floating charge pump circuit from the charge pump controller.

11.(Currently Amended) The floating charge pump circuit of claim 8 further including a charge pump capacitor coupled to receive a the pump voltage of the floating charge pump circuit from the charge pump controller and to receive the input voltage couple the pump voltage from the charge pump controller across the pump capacitor to the output capacitor, the charge pump capacitor having a first terminal and a second terminal.

12.(Currently Amended) The floating charge pump circuit of claim 11 further including a first diode coupled to the first terminal of the charge pump capacitor and coupled to receive the ~~input~~ first supply voltage.

13.(Currently Amended) The floating charge pump circuit of claim ~~11~~ 12 further including the output capacitor having a first terminal coupled to receive the first supply input ~~input~~ voltage and a second terminal coupled to a second diode, the second diode coupled to the first terminal of the charge pump capacitor.

14.(Currently Amended) The floating charge pump circuit of claim 8 ~~further including a~~ wherein the charge pump controller is coupled to receive the second supply input ~~input~~ voltage and responsively form a series of pulses having the pump voltage of the floating charge pump circuit.

15.(Currently Amended) The floating charge pump circuit of claim 14 wherein the charge pump controller is operably coupled to disable charging the output capacitor when a the pump voltage of the floating charge pump circuit exceeds a protection value.

16.(Original) A method of forming a charge pump controller comprising:

forming a first input operable for receiving a feedback signal representative of an internal regulated voltage of the charge pump controller; and

coupling the charge pump controller to disable generating a charge pump signal when the internal regulated voltage exceeds a protection value of the charge pump controller.

17.(Original) The method of claim 16 wherein forming a first input operable for receiving a feedback signal representative of an internal regulated voltage of the charge pump controller includes coupling a voltage regulator to form the internal regulated voltage including coupling the voltage regulator to receive a reference voltage.

18.(Original) The method of claim 17 further including coupling a comparator to receive the reference voltage and disable generating the charge pump signal when the feedback signal exceeds the reference voltage by a first value.

19.(Original) The method of claim 17 further including coupling an amplifier to receive the reference voltage and the feedback signal and responsively drive a regulator transistor to generate the internal regulated voltage.

20.(New) The method of claim 1 wherein configuring the charge pump controller to receive the operating voltage for operating the charge pump controller from the second voltage supply includes configuring the charge pump controller to form a regulated voltage from the second voltage supply and form the pump voltage to be substantially equal to the regulated voltage.

21.(New) The method of claim 1 wherein configuring the charge pump controller to receive the operating voltage for operating the charge pump controller from the second voltage supply that is external to the charge pump controller includes configuring the charge pump controller to form a drive signal that controls switching the output capacitor into a charging configuration during a first portion of the drive signal and that controls switching the output capacitor into a non-charging configuration during a second portion of the drive signal and that also couples the pump voltage from the drive signal to the output capacitor.

22.(New) The method of claim 1 wherein configuring the charge pump controller to receive the operating voltage for operating the charge pump controller from the second voltage supply that is external to the charge pump controller includes configuring the charge pump controller to form a drive signal that controls switching the output capacitor into a charging configuration during a first portion of the drive signal and that controls switching the output capacitor into a non-charging configuration during a second portion of the drive signal wherein the drive signal has a value that is substantially equal to the pump voltage during the first portion of the drive signal and the value of the drive signal controls coupling the value of the drive signal to the output capacitor during the first time period.

23.(New) The floating charge pump circuit of claim 8 wherein the charge pump controller is configured to use the operating supply to form an oscillating signal that controls alternately coupling the output capacitor in a charging configuration and a non-charging configuration.